

## Energy Newsletter

### Energy News Summary

The U.S. Energy Information Administration (EIA) recently announced its early release 2013 Annual Energy Outlook (AEO 2013). This detailed annual report is anticipated by energy professionals throughout the nation. The EIA presents the full and finalized report several months after the early release. While the EIA's AEO 2013 focuses on detailed forecasts of US energy production and consumption, it generally strikes some of the themes noted in last month's newsletter which summarized the 2012 World Energy Outlook, which is published by the International Energy Administration. Generally the forecasts call for more secure supplies of petroleum and natural gas, as well as continued growth in coal use in the developing world. The combination of which will make effectively addressing climate change a huge challenge. Some key points in AEO 2013 are shown below; energy forecast charts are on pages 8 and 9:

- Crude oil production, particularly from tight oil plays, rises sharply over the next decade.
- Natural gas production is higher throughout the AEO2013 Reference case projection than it was in AEO2012.
- Natural gas increasingly serves the industrial and electric power sectors.
- Industrial production expands in response to the initial competitive advantage of low natural gas prices.
- The United States exports more natural gas than projected in the AEO2012 Reference case.
- Motor gasoline consumption is lower in AEO2013 relative to the level in AEO2012, reflecting the introduction of more stringent corporate average fuel economy standards.
- Growth in diesel fuel consumption is moderated by increased use of natural gas in heavy-duty vehicles.
- Renewable fuel use grows at a much faster rate than fossil fuel use, reaching about 13 percent of total energy consumption by 2040.
- With improved efficiency of energy use and a shift away from the most carbon-intensive fuels, U.S. energy-related carbon dioxide (CO<sub>2</sub>) emissions remain more than 5 percent below their 2005 level through 2040.

### Energy Price Overview

Overall, energy prices have remained relatively stable since the last newsletter. Crude oil is up every so slightly, with WTI near \$88/barrel, while Brent crude is at \$108/barrel. National gasoline and diesel prices continued their traditional seasonal pattern, steadily decreasing with national gasoline average now at \$3.25 (CA \$3.53), and diesel at \$3.95/gal (CA \$4.05). National prices for gasoline, diesel and jet fuel began to decline about 12 weeks ago and have likely reached the low point for the year. When crude oil prices remain steady, we usually observe transportation fuel prices reaching a low in December. On the west coast, where prices were much higher this spring and summer, we have seen a much larger and faster rate of decline over the past three months. The average gasoline price is down 75 cents/gal from a high in early October, and diesel is down 42 cents/gal from a high in mid September. This week the state average price is \$3.36/gal, down 12 cents from the last report, while state diesel is \$3.99/gal, down 16 cents.

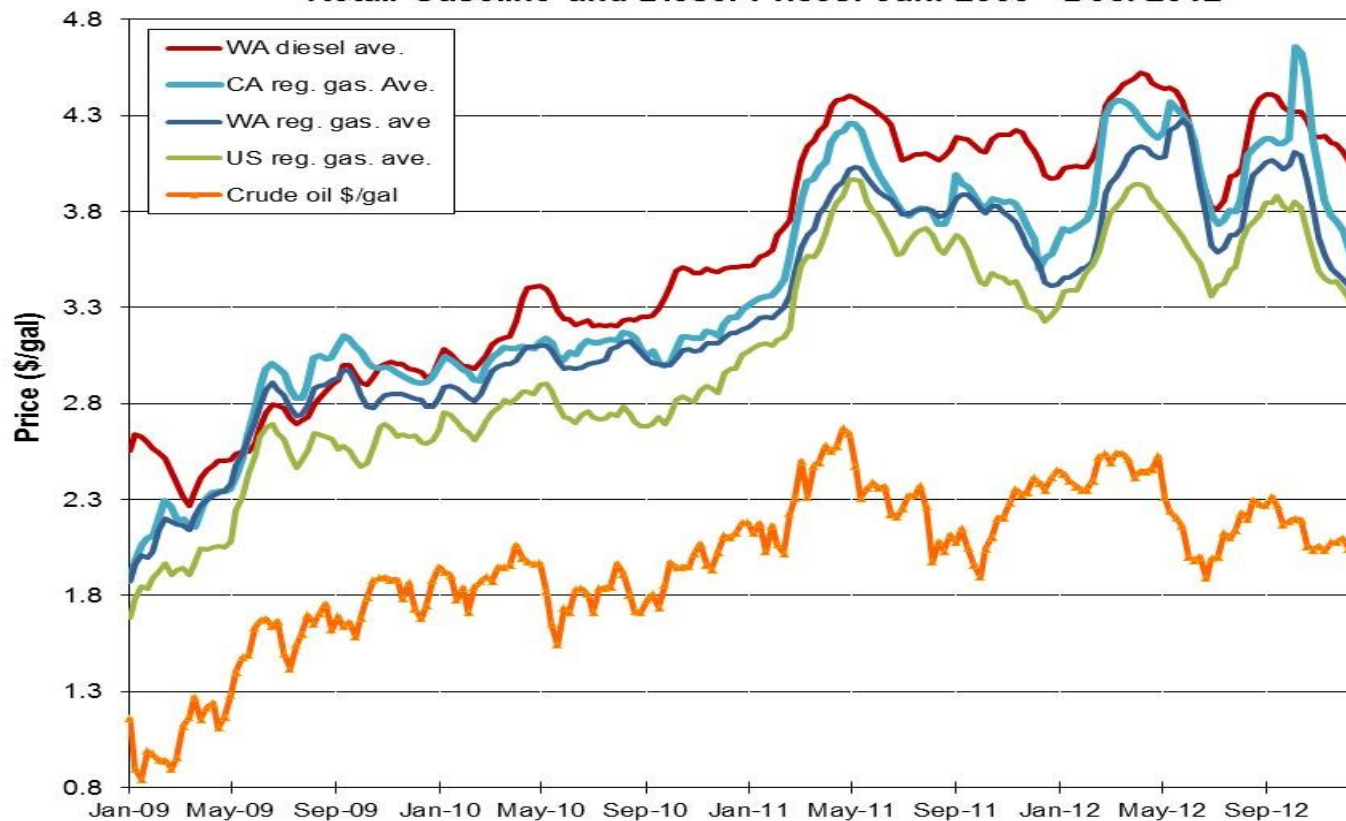
After rising for two months the NYMEX natural gas price (January delivery) has declined moderately in the face of high storage volumes and mild weather in much of the U.S., and is currently \$3.45/MMBtu. Locally the spot price for gas at Kingsgate is also down: now at 3.39 \$MMBtu, or about 38 cents lower. Due to flat production, energy analysts expect natural gas prices to eventually rise if the U.S. has an average winter heating season.

A reported gas storage draw of 82 Bcf last week is close to average for this time of year. The national natural gas storage figure is at 3,724 Bcf and is 10.2% above the 5-year storage average, perhaps a sign that we won't have that 'average' winter quite yet.

Regional electricity spot price remained relatively low. Hydropower generation is still plentiful, and demand is relatively low which keeps spot prices in check. The (four-week) Mid C trading hub (on-peak) price ranged from \$24-34 per MWh, and the average electricity monthly spot market price was \$28.5 per MWh, or \$0.4 per MWh less than the previous report.

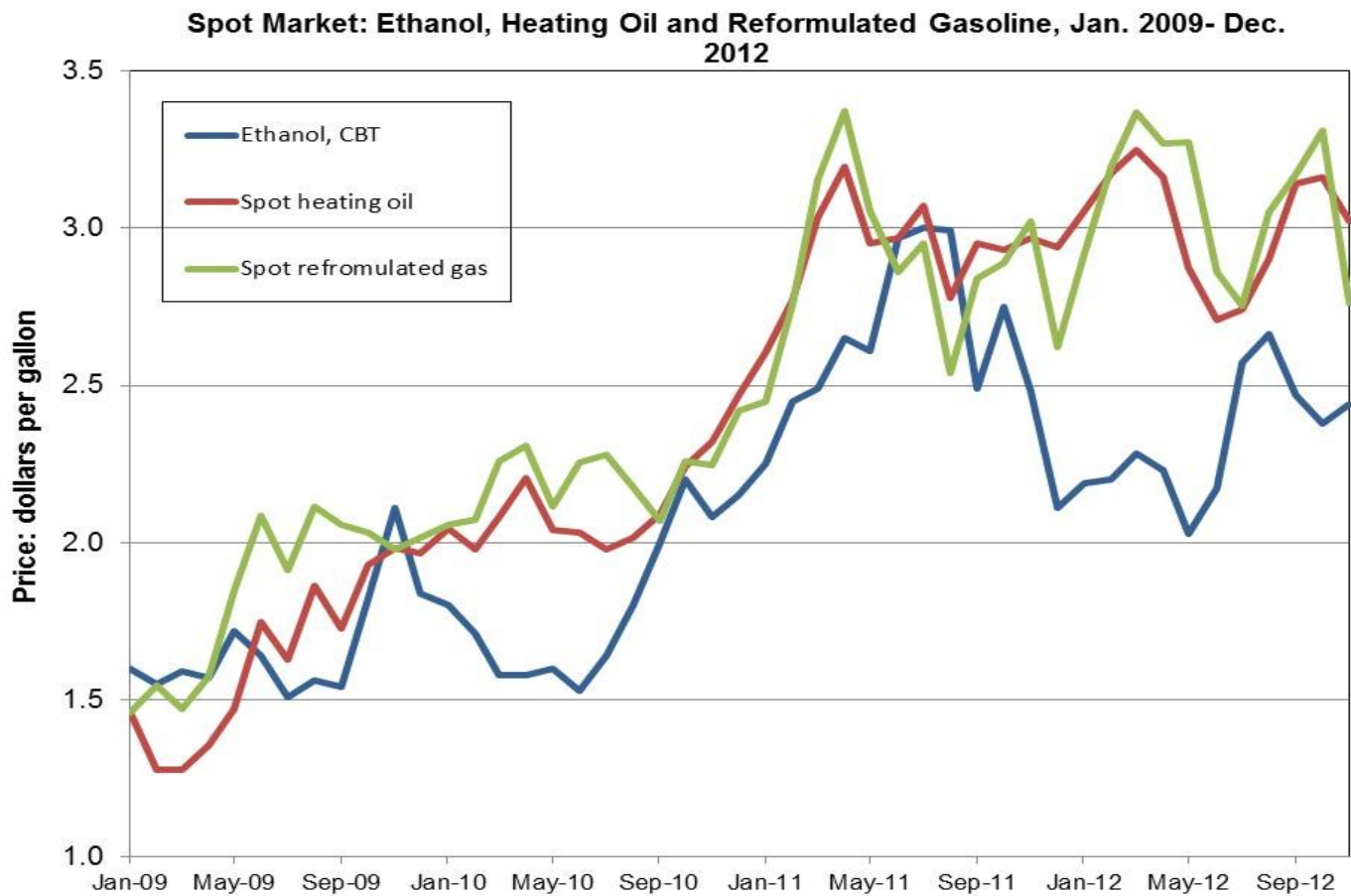
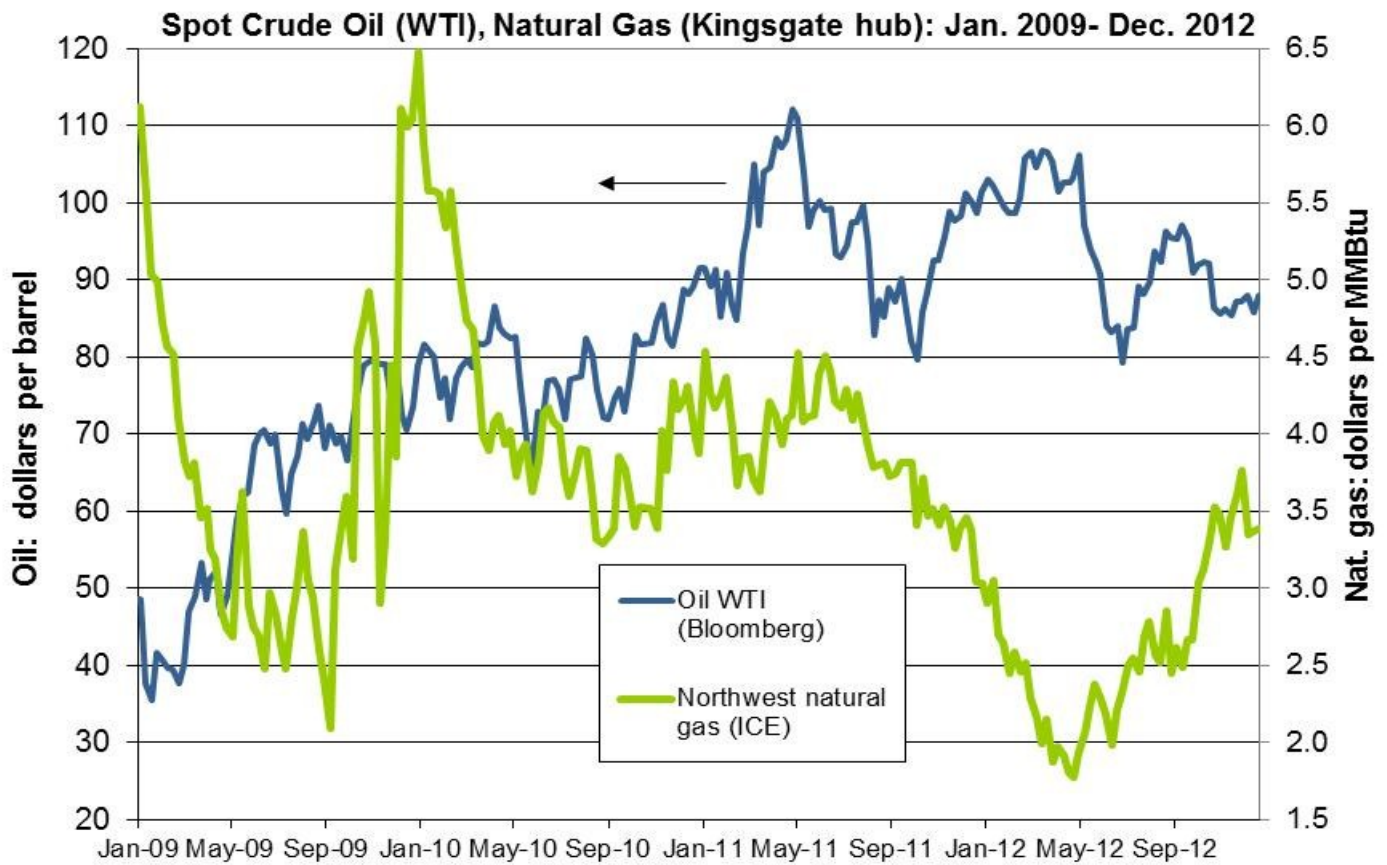
# Electricity, Petroleum & Natural Gas Prices

**Retail Gasoline and Diesel Prices: Jan. 2009 - Dec. 2012**



Energy Price Summary	Current	Month Ago	Year Ago
Monthly Range at Mid-C (Peak: \$ per MWh)	24-34	21-36	27.5-42
Average Mid C price (Peak hours \$ MWh)	28.5	28.9	37.4
Electricity WA Retail: Oct. (cents/kWh)	6.88	6.82	6.94
Natural gas spot price (next day: \$ per million BTU)	3.39	3.77	3.04
Natural gas futures (NYMEX next month: \$ per million BTU)	3.45	3.75	3.54
E85 (national average: \$ per gallon gasoline)	3.99	4.36	3.87
Ethanol (CBT next month contract: \$ per gallon)	2.23	2.44	2.48
Corn (\$ per bushel)	7.01	7.58	6.05
Petroleum, West Texas Intermediate: (\$ per barrel)	88.0	87.2	98.7
Seattle gasoline price (\$ per gallon)	3.39	3.49	3.49
Gasoline futures (NYMEX next month: \$ per gallon)	2.74	2.74	2.48
State diesel price (\$ per gallon)	3.99	4.15	3.99
Heating oil futures (NYMEX next month: \$ per gallon)	3.03	3.02	2.95
U.S. residential propane price report (resumes in Oct.)	2.40	2.41	2.86
	<b>US Avg</b>	<b>West Coast</b>	<b>West Coast</b>
<b>Clean Cities: Alternative Fuel Price Report, Oct 2012</b>	<b>current</b>	<b>last qtr avg</b>	<b>current qtr</b>
Ethanol E85 (\$ per gas gallon equiv. )	4.89	4.75	5.20
Biodiesel B20 (\$ per diesel gallon equiv.)	4.26	4.12	4.50
Biodiesel B99-100 (\$ per diesel gallon equiv.)	4.83	4.71	4.91
Compressed Natural Gas (\$ per gas gallon equiv. )	2.12	2.24	2.41
Propane (\$ per gas gallon equiv.)	3.53	4.10	3.91





## River & Snow Pack Info

- Observed Nov. stream flow at The Dalles: 140% of average.
- Observed Nov. precipitation above The Dalles: 105% of average.
- Forecast runoff at The Dalles: NA.
- Estimate of 2011-12 snow pack: NA.
- Federal hydropower generation in Nov.: 7,577 aMW, 2007-2012 average: 7,007 aMW.
- Reservoir content (Libby, Hungry Horse, Grand Coulee, Dworshak): Nov. 81%, 5-year average: 78%.

## Power Exchanged

Average flow of power during the last 30 days  
(updated on Dec. 21)

- |                            |          |
|----------------------------|----------|
| • California (exported to) | 3,731 MW |
| • Canada (exported to)     | 337 MW   |
| • Net power exported:      | 4,068 MW |

## Greenhouse Gas Emission Performance Standards

The Energy Office is currently working on an update to the standards for baseload electricity generation. The date for adopting the final rule has been delayed. Stakeholders will be sent updated information within the next week. The Department of Ecology begins rulemaking on amendments to the WAC in the spring.

See all work and stakeholder comments at: <http://www.commerce.wa.gov/Programs/Energy/Office/Utilities/Pages/EmissionPerfStandards.aspx>

The 2013 Tesla Model S is an all electric car from California. It is this years Green Car Reports Best Car to Buy and Motor Trends Car of the Year winner. Consumer Reports has been testing one and all staff are impressed.

It can go from zero to 60 in 4.4 seconds (depending on model) and has a top speed of 125-133 mph. Government rating is 265 miles per charge, but one owner recently got over 400 miles on a charge. Charging can be done to 80% capacity in 30 minutes. It's fairly roomy and has plenty of cargo space with two trunks. Flat interior floor (no bump down the middle) makes great leg-room. Batteries can be swapped out in around 15 minutes. A 17" touchscreen is in the dash. 3G wifi internet, two USB ports, Bluetooth, and GPS mapping. See it at [www.teslamotors.com](http://www.teslamotors.com)

## Tesla Model S Sedan



# Energy Headlines

If you only have time to read a couple of articles—read these.



The Energy Future Ain't What It Used To Be. New York Times, Dec. 16.

<http://green.blogs.nytimes.com/2010/12/16/the-energy-future-aint-what-it-used-to-be/>

The False Promise of Energy Independence. New York Times, Dec. 21.

<http://www.nytimes.com/2012/12/21/opinion/the-false-promise-of-energy-independence.html>

The Shale Revolutions Shifting Politics. New York Times, Dec. 25.

<http://www.nytimes.com/2012/12/26/opinion/global/the-shale-revolutions-shifting-geopolitics.html>

Seattle Coal-Export Hearing Packed, Mostly by Opponents. Seattle Times, Dec. 14.

[http://seattletimes.com/html/localnews/2019899522\\_coalhearing14m.html](http://seattletimes.com/html/localnews/2019899522_coalhearing14m.html)

Opinion: Solar Panels for Every Home. New York Times, Dec. 13.

<http://www.nytimes.com/2012/12/13/opinion/solar-panels-for-every-home.html>

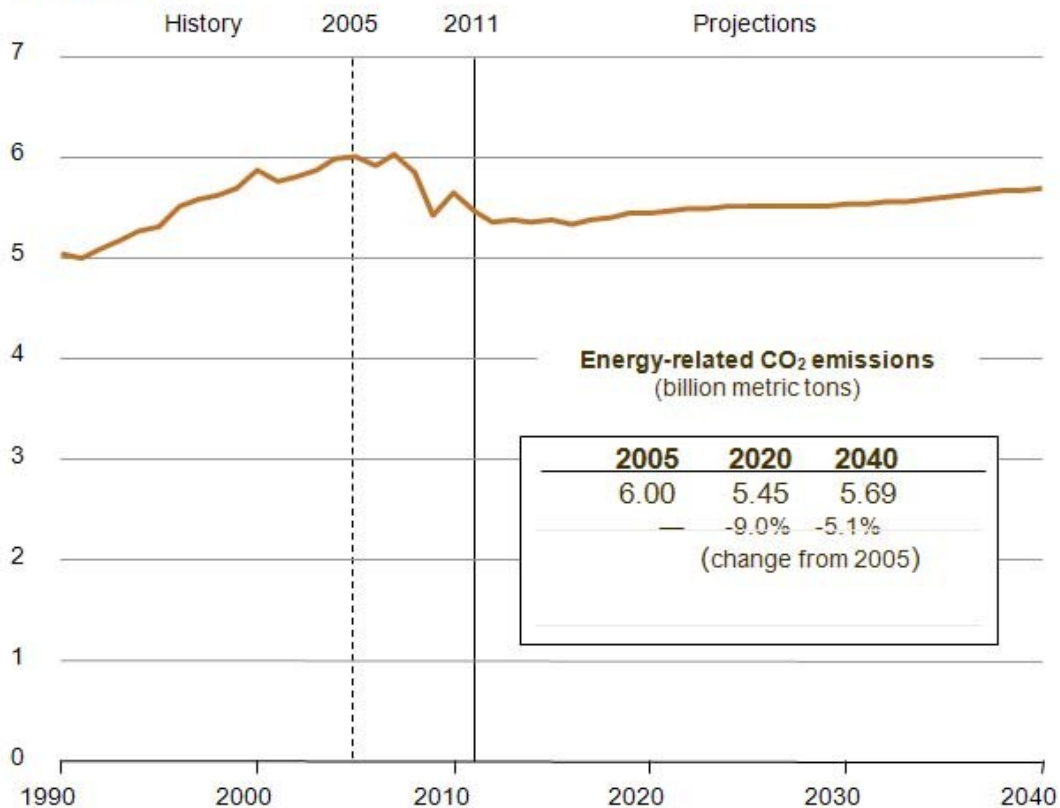
Outlook for Offshore Wind: Dark and Stormy. New York Times, Dec. 4.

<http://green.blogs.nytimes.com/2012/12/04/outlook-for-offshore-wind-dark-and-stormy/>

From the 2013 Annual Energy Overview (see back page), renewable fuel use grows creates a shift in CO<sub>2</sub> emissions.

**Figure 4. U.S. energy-related CO<sub>2</sub> emissions, 1990-2040**

billion metric tons



# Energy Headlines continued

## Fossil Fuels: Petroleum, natural gas and coal

Report Bolsters the Case for Large US LNG Exports. New York Times, Dec. 6.

<http://www.nytimes.com/2012/12/06/business/energy-environment/government-report-bolsters-the-case-for-large-us-natural-gas-exports.html>

The False Promise of Energy Independence. New York Times, Dec. 21.

<http://www.nytimes.com/2012/12/21/opinion/the-false-promise-of-energy-independence.html>

South Puget Sound Gas Prices Lowest Since Winter of 2011. News Tribune, Tacoma, Dec. 18.

<http://blog.thenewstribune.com/business/2012/12/18/south-sound-gas-prices-lowest-since-winter-of-2011/>

Sasol Betting Big on Gas to Liquids Plant in U.S. New York Times, Dec. 18.

<http://www.nytimes.com/2012/12/18/business/energy-environment/sasol-betting-big-on-gas-to-liquid-plant-in-us.html?pagewanted=all>

Energy Agency Sees Coal Boom Unabated. New York Times, Dec. 18.

<http://dotearth.blogs.nytimes.com/2012/12/18/energy-agency-sees-global-coal-boom-unabated-europes-binge-temporary/>

The Shale Revolutions Shifting Politics. New York Times, Dec. 25.

<http://www.nytimes.com/2012/12/26/opinion/global/the-shale-revolutions-shifting-geopolitics.html>

Seattle Coal-Export Hearing Packed, Mostly by Opponents. Seattle Times, Dec. 14.

[http://seattletimes.com/html/localnews/2019899522\\_coalhearing14m.html](http://seattletimes.com/html/localnews/2019899522_coalhearing14m.html)

## Renewable energy

Solar Installations Surge on Lower Costs and Government Support. New York Times, Dec. 11.

<http://green.blogs.nytimes.com/2012/12/11/solar-installations-surge-on-lower-costs-and-government-support/>

Food vs. Fuel in 2013. New York Times, Dec. 24.

<http://green.blogs.nytimes.com/2012/12/24/food-vs-fuel-in-2013/?src=recg>

When it Comes to Dams, China Won't Be Stopped. Associated Press, Dec. 20.

<http://www.wenatcheeworld.com/news/2012/dec/20/when-it-comes-to-dams-china-wont-be-stopped/>

Wind Power Installations Beating Natural Gas in 2012. Bloomberg News, Dec. 21.

<http://www.bloomberg.com/news/2012-12-21/wind-power-generation-beating-natural-gas-in-u-s-in-2012.html>

## Climate Change and related

Scientists report faster warming in Antarctica. New York Times, Dec. 24.

[http://www.nytimes.com/2012/12/24/science/earth/west-antarctica-warming-faster-than-thought-study-finds.html?src=ISMR\\_AP\\_LO\\_MST\\_FB](http://www.nytimes.com/2012/12/24/science/earth/west-antarctica-warming-faster-than-thought-study-finds.html?src=ISMR_AP_LO_MST_FB)

Most New Yorkers Tie Hurricane to Climate Change, Poll Finds. New York Times, Dec. 3.

<http://www.nytimes.com/2012/12/04/nyregion/most-new-yorkers-tie-hurricane-sandy-to-climate-change-poll-finds.html?smid=pl-share>

California Law Tests Company Responses to Carbon Law. New York Times, Dec. 25.

<http://www.nytimes.com/2012/12/25/business/energy-environment/california-manufacturers-weigh-costs-of-new-greenhouse-gas-rules.html?pagewanted=all>

Power Company Loses Some of Its Appetite for Coal. New York Times, Dec. 20.

<http://www.nytimes.com/2012/12/20/business/energy-environment/aep-has-plan-to-close-kentuckys-big-sandy-power-plant.html?partner=rss&emc=rss>



Exploring a Proposed Carbon Diet for American Power Plants. New York Times, Dec. 19.

<http://dotearth.blogs.nytimes.com/2012/12/19/exploring-a-proposed-carbon-diet-for-american-power-plants/?partner=rss&emc=rss>

Poll: Most Americans Say World is Warming. USA Today, Dec. 14.

<http://www.usatoday.com/story/weather/2012/12/14/climate-change-global-warming-rising-temperatures-poll/1769831/>

Tough Times for U-S Winter Tourism if Climate Change Goes Unaddressed. Kitsap Peninsula Bus. Journal.

[http://kpbj.com/business\\_daily/2012-12-10/tough\\_times\\_for\\_us\\_winter\\_tourism\\_if\\_climate\\_change\\_goes\\_unaddressed](http://kpbj.com/business_daily/2012-12-10/tough_times_for_us_winter_tourism_if_climate_change_goes_unaddressed)

## Electricity and Energy Efficiency

New Study Shows Northwest's Energy Codes Are Working. Seattle Post-Intelligencer, Dec. 19.

<http://blog.seattlepi.com/energy/2012/12/19/northwest-energy-codes-working-but-home-efficiency-opportunities-abound/>

Why Renters Use More Electricity. New York Times, Dec. 12.

<http://green.blogs.nytimes.com/2012/12/20/why-renters-use-more-electricity/>

Electric Cars, Plug-In Hybrids Gain Sales. San Francisco Chronicle, Dec. 20

<http://www.sfgate.com/business/article/Electric-cars-gaining-traction-slowly-but-surely-4135729.php>

Oregon Gov. John Kitzhaber Releases Ten-Year Energy Action Plan. Oregonian, Portland, Dec. 19.

[http://www.oregonlive.com/politics/index.ssf/2012/12/gov\\_john\\_kitzhaber\\_releases\\_10.html](http://www.oregonlive.com/politics/index.ssf/2012/12/gov_john_kitzhaber_releases_10.html)

Washington State Recycling Rate Hits Nearly 51 Percent. Associated Press, Dec. 18.

<http://www.keprtv.com/news/local/Wash-recycling-rate-hits-nearly-51-percent-183970031.html>

Long Island Power Authority Faces Commission. National Public Radio, Dec. 21.

<http://www.npr.org/2012/12/21/167771913/long-island-power-authority-faces-commission?ft=1&f=3>

Researchers Study Electric Car Impacts on the Grid. The Energy Collective, Dec. 14.

<http://theenergycollective.com/namarchetti/158531/researchers-study-electric-car-impacts-grid>

## Recent Reports on Energy and Climate Change

Annual Energy Outlook 2013 Early Release: <http://www.eia.gov/forecasts/aeo/er/>

Environmental Protection Agency 2012 Climate Change Indicators Report.

<http://www.epa.gov/climatechange/science/indicators/>

World Energy Outlook 2012—Summary, International Energy Administration.

<http://www.worldenergyoutlook.org/publications/weo-2012/>

Electricity Storage, Energy Information Administration, July 2012

[http://www.eia.gov/todayinenergy/detail.cfm?id=6910#tabs\\_ElecStorage-1](http://www.eia.gov/todayinenergy/detail.cfm?id=6910#tabs_ElecStorage-1)

Oil: The Next Revolution. Belfer Center for Science, Harvard Kennedy School, June 2012

<http://belfercenter.ksg.harvard.edu/publication/22144/oil.html>

Leading Companies Contradict Own Actions on Climate Science. Union of Concerned Scientists, May 2012.

[http://www.ucsusa.org/news/press\\_release/corporate-climate-report-0390.html](http://www.ucsusa.org/news/press_release/corporate-climate-report-0390.html)

Annual Energy Outlook 2012 Early Release. Energy Information Administration, Jan. 2012

<http://www.eia.gov/forecasts/aeo/er/?src=email>

Report on the First Quadrennial Technology Review, US Dept of Energy

<http://energy.gov/downloads/report-first-quadrennial-technology-review>

Understanding Household Preferences for Alternative- Fuel Vehicle Technologies. Mineta Transportation Institute. <http://www.transweb.sjsu.edu/project/2809.html>

Residential Energy Consumption Survey: 2009, Energy Information Administration, Mar 2011.

<http://www.eia.doe.gov/consumption/residential/reports/electronics.cfm>

Although every URL is checked for accuracy prior to publication, URLs are subject to change for various reasons.

# Annual Fuel Economy Guide

U.S. EPA and DOE have released the 2013 fuel economy guide. It gives a wide range of information for selecting a future vehicle purchase, including comparing cars, MPG, tips, calculators, finding the cheapest gas, and more. The guide and information can be found at <http://www.fueleconomy.gov/> or <http://fueleconomy.gov/m/> for mobile devices.

## ARPA-E Open 2012 Projects

The U.S. Department of Energy has selected 66 technology research projects around the United States. In our state there are two:

\$4 million for University of Washington, Seattle: Biocatalyst for Small-Scale Conversion of Natural Gas into Diesel Fuel (Advanced Fuels)

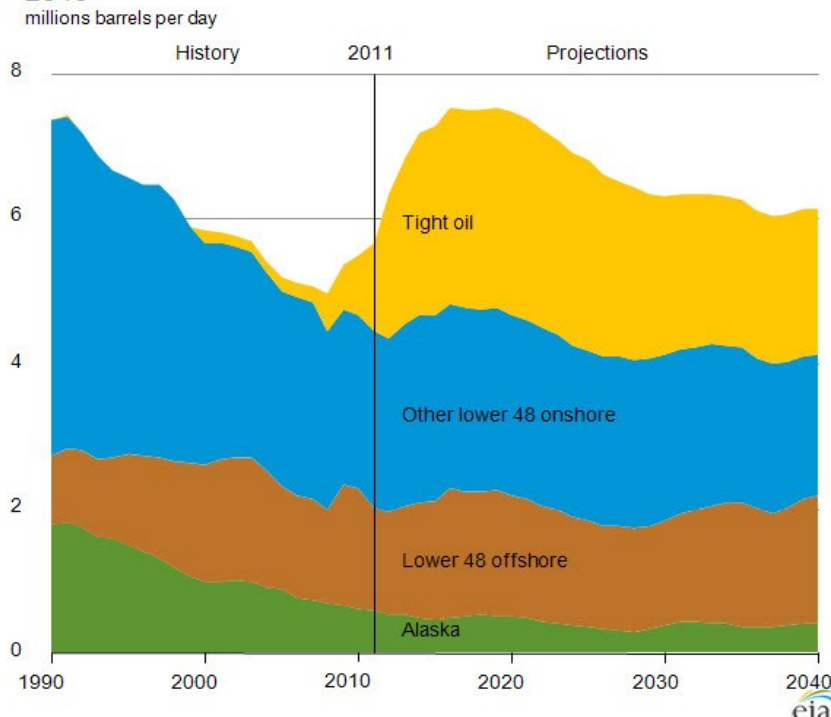
\$1.6 million for Pacific Northwest National Laboratory, Richland: Non-Wire Methods for Transmission Congestion Management (Grid Modernization)

See all of the projects at [http://arpa-e.energy.gov/Portals/0/Documents/Projects/OPEN2012\\_ProjectDescriptions\\_FINAL\\_112812.pdf](http://arpa-e.energy.gov/Portals/0/Documents/Projects/OPEN2012_ProjectDescriptions_FINAL_112812.pdf)

## Annual Energy Outlook 2013

U.S. Energy Information Administration ([www.eia.gov](http://www.eia.gov)) has released an early overview of trends and issues for energy markets. You can look at the overview at [http://www.eia.gov/forecasts/aeo/er/executive\\_summary.cfm](http://www.eia.gov/forecasts/aeo/er/executive_summary.cfm)

Figure 1. U.S. domestic crude oil production by source, 1990-2040



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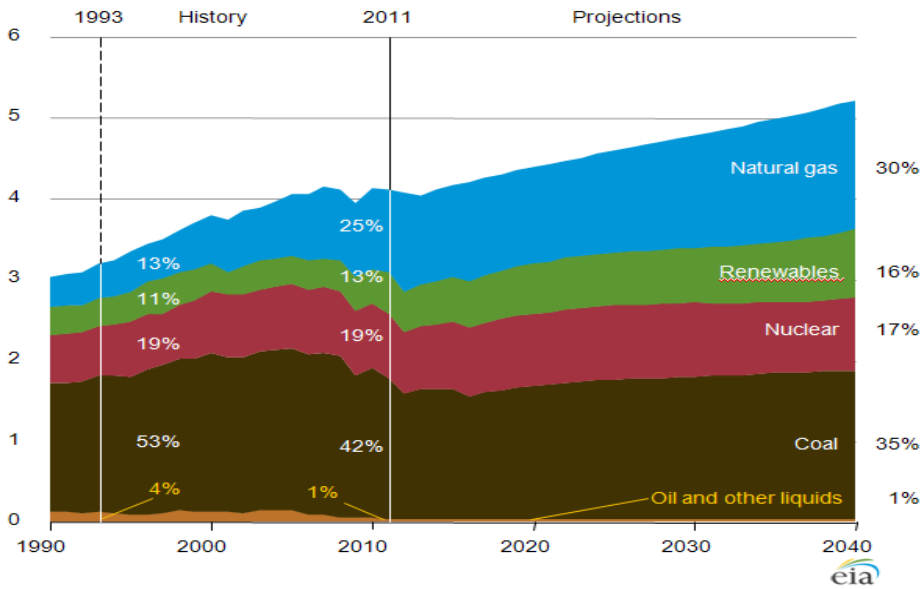
Phone: 360.725.3112

Email: [energy\\_policy@commerce.wa.gov](mailto:energy_policy@commerce.wa.gov)



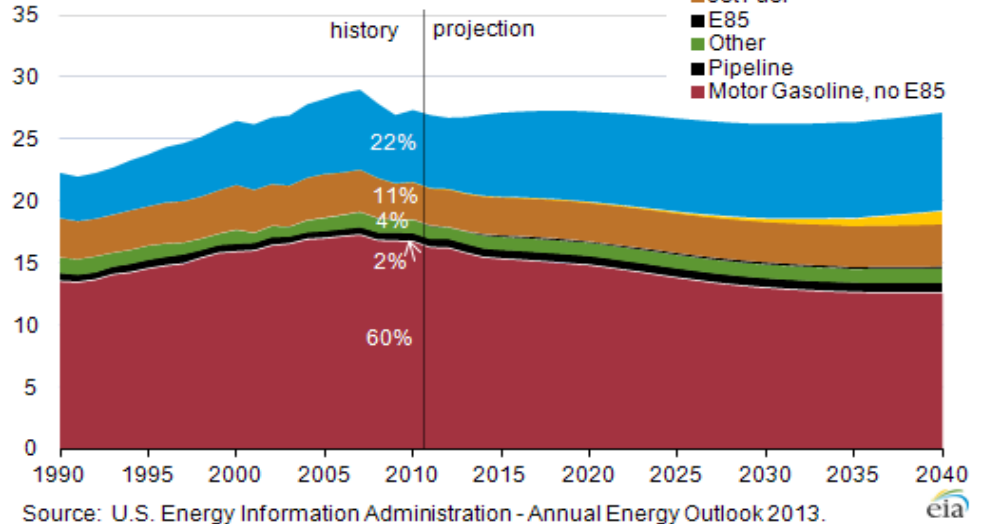
**Figure 12. Electricity generation by fuel, 1990-2040**

trillion kilowatthours per year



**Figure 2. Transportation energy consumption by fuel**

quadrillion British thermal units



Source: U.S. Energy Information Administration - Annual Energy Outlook 2013.

**Figure 3. U.S. dry natural gas production by source, 1990-2040**

trillion cubic feet

